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V. *Appendix to the Description of a new Electrometer. In a Letter from the Rev. Abraham Bennet, M. A. to Charles Blagden, M. D. Sec. R. S.*

Read December 21, 1786.

S I R,

Wirksworth, Dec. 18, 1786.

THE following description of my Electrometer, connected with M. VOLTA's Condenser, waits on the approbation of the Royal Society, to be inserted in the Philosophical Transactions, as an Appendix to my Paper, communicated by Dr. PRIESTLEY.

The metallic cap of the electrometer is for this purpose to be ground and polished flat and smooth, to fit a piece of marble also polished on both sides, and varnished. In the side of the marble is to be fixed a glass or baked-wood handle. Lastly, on the top is a smaller metallic plate, furnished also with an insulating handle. The whole construction will be understood by the annexed drawing (see Table III. fig. 2.). When a small charge of electricity is communicated to the metal at A, whilst the marble B is touched, the single condenser is charged, and its electricity (if in sufficient quantity) will be sensible when the marble is lifted up by the handle C; but, if not now sensible, touch the small plate D, whilst thus lifted up from the cap, and then lift it off the marble by its insulating handle, and presenting

sending it to the cap of the electrometer (if not still in too small a quantity) it will cause a divergence of the leaf gold, by an electricity of the same kind with that which was communicated to the cap, and in which cap a small quantity of electricity remains. Thus both the larger and smaller condensers of M. VOLTA are connected with the electrometer, so as to be used in the most simple, expeditious, and convenient manner I can think of. Their amazing power of condensing electricity is sufficiently explained in M. VOLTA's Paper, before published in the Philosophical Transactions.

To the experiments on blowing powders from a pair of bellows I have to add, that if the powder is blown at about the distance of three inches upon a plate which is moistened or oiled, its electricity is contrary to that produced by blowing upon a dry plate. This shews that the electricity of the streams of powder issuing out of the bellows is only contrary to the more expanded part, because it is within the influence of its atmosphere; for when this is destroyed by the adhesion of the powder to the moistened plate, it is negative when the bellows are positive, as it was before positive when the more expanded cloud was negative.

I have also to add, that the experiments on evaporation of water may be tried with more ease and certainty of success by heating the small end of a tobacco pipe, and pouring water into the head, which, running down to the heated part, is suddenly expanded, and will shew its electricity when projected upon the cap of the electrometer, more sensibly than any other way I have tried. If the pipe be fixed in a cloven stick, and placed in the cap of one electrometer, whilst the steam is projected upon another, it produces both electricities at once.

Spirit of wine and ether are electrified like water. Oil and vitriolic acid produced smoke without any change of electricity. In these experiments a long pipe is better than a short one.

I am, &c.

ABRAHAM BENNET.



